

WHAT IS CLAIMED IS:

1. An in-plane switching mode liquid crystal display device comprising:

5 first and second substrates;

a plurality of gate and data bus lines which are aligned on said first substrate to define a plurality of pixel regions;

10 a common bus line aligned in said pixel regions of said first substrate;

a thin film transistor formed at each of said pixel regions of said first substrate and comprising a gate electrode, a gate insulator, a semiconductor layer, a source electrode, and a drain electrode;

15 a data electrode formed to be parallel to a first direction on said gate insulator and having a portion overlapping said common bus line for forming a first storage capacitor;

20 a passivation layer formed over said data electrode and said thin film transistor;

a common electrode formed on said passivation layer so as to overlap said gate and data bus lines and having a portion overlapping said data electrode for forming a second storage capacitor; and

25 a liquid crystal layer formed between said first

and second substrates.

2. The device according to claim 1, wherein said
common electrode is connected electrically to said
5 common electrode through a first hole formed in said gate
insulator and said passivation layer.

3. The device according to claim 1, wherein said
data bus lines are formed of high conductive metal
10 layers.

4. The device according to claim 3, The device
according to claim 4, wherein said data bus lines include
Mo metal layer, Mo/Al/Mo triple metal layers, or Cr/Al/Cr
15 triple metal layers.

5. The device according to claim 1, wherein said
common electrode includes indium tin oxide.

6. The device according to claim 1, wherein said
common electrode has an oblique side inclined to a second
direction perpendicular to said first direction.

7. The device according to claim 6, wherein said
25 common electrode includes indium tin oxide.

8. The device according to claim 1, further comprising an alignment layer formed over said common electrode and said passivation layer.

5 9. The device according to claim 8, wherein an alignment direction of said alignment layer is determined to be inclined counterclockwise to said second direction with a first angle θ_1 .

10 10. The device according to claim 9, wherein said first angle θ_1 is in the range of 45° to 90° .

15 11. The device according to claim 9, wherein said common electrode have a first oblique counterclockwise inclined to said second direction with a second angle θ_2 , and a second oblique clockwise inclined to said second direction with a third angle θ_3 .

20 12. The device according to claim 11, wherein said second angle θ_2 is in the range of said first angle θ_1 to 90° .

25 13. The device according to claim 11, wherein said third angle θ_3 is in the range of $90^\circ - \theta_1$ to 90° .

14. The device according to claim 11, wherein said first angle θ_1 is 75° .

5 15. The device according to claim 11, wherein said second angle θ_2 is 45° .

16. The device according to claim 11, wherein said third angle θ_3 is 45° .

10 17. The device according to claim 1, further comprising a metal layer formed on said passivation layer in the region of said thin film transistor.

15 18. The device according to claim 17, wherein said metal layer and said common electrode are formed of the same metal.

19. The device according to claim 17, wherein said metal layer and said common electrode include Mo.

20 20. The device according to claim 17, wherein said metal layer and said common electrode include indium tin oxide.

25 21. The device according to claim 17, wherein

said metal layer and said common electrode include a double metal layer ITO/Mo which is formed by depositing Mo and indium tin oxide in the name order.

5 22. The device according to claim 17, wherein said metal layer is connected electrically to said data bus line through a second hole which is formed in said gate insulator and said passivation layer.

10 23. The device according to claim 22, wherein said metal layer overlaps a portion of said gate bus line, and said second hole is formed in the region of said portion.

15 24. An in-plane switching mode liquid crystal display device comprising:

first and second substrates;

a plurality of gate and data bus lines which are aligned on said first substrate to define a plurality of pixel regions;

20 a common bus line aligned in said pixel regions of said first substrate;

a thin film transistor formed at each of said pixel regions of said first substrate and comprising a gate electrode, a gate insulator, a semiconductor layer,

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a source electrode, and a drain electrode;

a data electrode formed on said gate insulator and having a portion overlapping said common bus line for forming a first storage capacitor;

5 a passivation layer formed over said data electrode and said thin film transistor;

a common electrode formed on said passivation layer and having a portion overlapping said data electrode for forming a second storage capacitor;

10 a metal layer formed on said passivation layer in the region of said thin film transistor; and

a liquid crystal layer formed between said first and second substrates.

15 25. The device according to claim 24, wherein said common electrode is connected to said common bus line through a first hole formed in said gate insulator and said passivation layer.

20 26. The device according to claim 24, wherein said metal layer and said common electrode is formed of the same metal.

25 27. The device according to claim 24, wherein said metal layer and said common electrode include Mo.

28. The device according to claim 24, wherein said metal layer and said common electrode include indium tin oxide.

5 29. The device according to claim 24, wherein said metal layer and said common electrode include a double metal layer ITO/Mo which is formed by depositing Mo and indium tin oxide in the name order.

10 30. The device according to claim 24, wherein said metal layer is connected electrically to said data bus line through a second hole which is formed in said gate insulator and said passivation layer.

15 31. The device according to claim 30, wherein said metal layer overlaps a portion of said gate bus line, and said second hole is formed in the region of said portion.

20 32, An in-plane switching mode liquid crystal display device comprising:

first and second substrates having a plurality of pixel regions;

a common bus line formed in said pixel regions;

25 a first insulating layer formed on said common

electrode;

a data electrode formed on said gate insulator and having a portion overlapping said common bus line for forming a first storage capacitor;

5 a second insulating layer formed on said data electrode;

a common electrode formed on said passivation layer so as to have an oblique side inclined to the extension direction of said data electrode and having a portion overlapping said data electrode for forming a second storage capacitor; and

10 a liquid crystal layer formed between said first and second substrates.